AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings includes a change to Figure(s) 1-5 and replaces the original sheets including Figures 1-5.

Attachment: five (5) replacement sheet

REMARKS

In the October 13, 2005 Office Action, the drawings and specification were objected to and claims 1-4 stand rejected in view of prior art, while claims 2 and 4 were indicated as containing allowable subject matter. Claims 1-4 also were rejected for failing to indicate and claim particularly and distinctly the subject matter that Applicant regards as the invention.

Status of Claims and Amendments

In response to the October 13, 2005 Office Action, Applicant has amended the specification and claims as indicated above. Applicant wishes to thank the Examiner for the indication of allowable subject matter and the thorough examination of this application. Thus, claims 2-4 are pending, with claims 2-4 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Drawings

In paragraph 1 of the Office Action, the drawings were objected to as failing to comply with 37 CFR §1.83(a). In response, Applicant has filed herewith a Request for Approval of Proposed Drawing Corrections. Reference designations have been added to Figs. 2-5. Reference designations 12 and 18 have been labeled as B12 and A18 for consistency with the specification. The cutouts and supporting points are referenced in the drawings and specification. The supporting points have been removed from the claims. The non-magnetic cylindrical member has been given antecedent basis in the specification as an alternative term for the plunger housing 13. Therefore, the non-magnetic cylindrical member is shown in the drawings. Applicant believes that the drawings now comply with 37 CFR §1.83(a). Applicant respectfully requests withdrawal of the objections.

Specification

In paragraph 3 of the Office Action, the specification was objected to for typographical errors and failing to comply with 37 CFR §1.71 and 37 CFR §1.75(d)(1). In response, Applicant has amended the specification to correct the typographical errors and to provide proper antecedent basis for the limitations of claims.

Specifically, Teflon has been changed to TEFLON to properly express a trademark. The non-magnetic cylindrical member has been given antecedent basis in the specification as an alternative term for the plunger housing 13. The tabs 10a-10d and the cutouts 10e-10h were given reference designations in the specification and drawings. A description of the cutouts 10e-10h in Fig. 4 was added to the specification to provide proper antecedent basis for the limitations of claim 3. Support for these amendments can be found in the original specification and claims, as well as the drawings. The drawings may provide a "written description" of an invention as required by §112. *Vas-Cath, Inc. v. Mahurkar*, 19 USPQ 2d 1111, 1118 (Fed. Cir. 1991).

Applicant believes that the specification is now correct and complies with 37 CFR §1.71 and 37 CFR §1.75(d)(1). Withdrawal of the objections is respectfully requested.

Claim Objections

In paragraph 4 of the Office Action, claims 1 and 3 were objected to because of informalities. Claim 1 has been cancelled thereby making the objection moot. Claim 3 has been amended to remove "supporting points" from the claim.

Applicant believes that the claims are now correct. Withdrawal of the objections is respectfully requested.

Claim Rejections - 35 U.S.C. §112

In paragraph 6 of the Office Action, claims 1-4 were rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. In response, the

non-magnetic cylindrical member has been given antecedent basis in the specification as an alternative term for the plunger housing 13. Applicant believes that the claims now comply with 35 U.S.C. §112, first paragraph. Withdrawal of the rejections is respectfully requested.

In paragraphs 8 and 9 of the Office Action, claims 1-4 were rejected under 35 U.S.C. §112, second paragraph. In response, Applicant has cancelled claim 1 and amended claim 2. Specifically, the word "Teflon" has been removed from claim 2. Applicant believes that the claims now comply with 35 U.S.C. §112, second paragraph. Withdrawal of the rejections is respectfully requested.

Rejections - 35 U.S.C. § 102

In paragraph 11 of the Office Action, claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,232,196 (Hutchings et al.). In response, Applicant has canceled claim 1 thus making the rejection moot.

Rejections - 35 U.S.C. § 103

In paragraph 13 of the Office Action, claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hutchings et al in view of U.S. Patent No. 4,085,921 (Ueda et al.). In response, Applicant has amended claim 3 to clearly define the present invention over the prior art of record.

More specifically, independent claim 3 now clearly recites, *inter alia*, a plurality of cutouts that are formed in a substantially spiral shape. The spiral shape includes an outer arc, an inner arc and a straight shape for connecting the outer and inner arc shapes. Clearly this arrangement is ***not*** disclosed or suggested by Hutchings et al, Ueda et al or any other prior art of record. It is well settled in U.S. patent law that the mere fact that the prior art can be modified does ***not*** make the modification obvious, unless the prior art ***suggests*** the desirability of the modification.

The delta flat spring of Hutchings et al. sags when a load is applied thereto. Accordingly, a distance between the supporting points of the delta flat spring changes. Therefore, friction is generated between the inclined stepped section of the plunger housing and the corresponding supporting point of the delta flat spring. The movement of the delta flat spring becomes stuck by friction. As a result, a flow rate of a fluid is discontinuously controlled so that the flow rate is controlled with low accuracy.

In the present invention, a flat spring is a circular flat spring having cutouts at a plurality of points in inner sections of the flat spring so that a distance between the supporting points does not change even when the load has changed. Substantially no friction is generated between the stepped section of the non-magnetic cylindrical member 13 and the corresponding supporting point of the circular flat spring because the supporting points do not move. As a result, a flow rate of a fluid is continuously controlled so that the flow rate is controlled with accuracy.

Specifically, referring to Figure 4 of the instant application, the circular flat spring has a plurality of cutouts. Each cutout is formed in a substantially spiral shape. The spiral shape includes an outer arc shape, an inner arc shape and a straight shape for connecting the outer and inner arc shapes. The points at which the circular flat spring engages the non-magnetic cylindrical member 13 do not move even when a load has changed. The spiral cutout sections move instead of these points. Thus, substantially no friction is generated at the stepped section of the non-magnetic cylindrical member 13 due to the movement. As a result, the points at which the circular flat spring engages the non-magnetic cylindrical member 13 of the circular flat spring do not get stuck with the stepped section. Accordingly, the flow rate of the fluid is continuously controlled so that the flow rate is controlled with accuracy.

Ueda et al. discloses a flat spring that is quite different from that of the present invention. Specifically, Ueda et al. does not disclose a plurality of cutouts that are formed in a substantially spiral shape.

Accordingly, the prior art of record lacks any suggestion or expectation of success for combining the patents to create the Applicant's unique proportional solenoid control valve.

Therefore, Applicant respectfully requests that this rejection be withdrawn in view of the above comments and amendments.

Allowable Subject Matter

In paragraph 14 of the Office Action, claims 2 and 4 were indicated as containing allowable subject matter. Applicant wishes to thank the Examiner for this indication of allowable subject matter and the thorough examination of this application. In response, Applicant has amended claims 2 and 4 to place them in independent form. Thus, independent claims 2 and 4 are believed to be allowable.

Prior Art Citation

In the Office Action, additional prior art references were made of record. Applicant believes that these references do not render the claimed invention obvious.

Conclusion

In view of the foregoing amendment and comments, Applicant respectfully asserts that claims 2-4 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,

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